

**AMENDMENTS TO THE CLAIMS**

1. (Previously Presented) A computer-implemented method for establishing a structure of a data item within a computer system, where said data item is an instance of a first class and inherits attributes and methods from said first class, the method comprising the steps of:  
  
creating a category object that is an instance of a category class, wherein said category class has one or more attributes; and  
  
associating said data item with said category object without associating said category object with all other instances of said first class thereby causing said data item to be associated with a structure that includes storage for values for said one or more attributes of said category class.
2. (Original) The method for Claim 1 further comprising the computer-implemented steps of:  
  
receiving data that is designated for a particular attribute of said one or more attributes;  
  
determining whether said data conforms to rules associated with said particular attribute;  
  
and  
  
if said data conforms to said rules  
  
storing said data as a value into said particular attribute.
3. (Previously Presented) The method for Claim 2 wherein the steps of receiving, determining, and storing are performed by a method in said category class.

4. (Original) The method for Claim 2 wherein said rules are data type rules associated with a data type of said particular attribute.
5. (Original) The method for Claim 2 wherein said rules are software rules.
6. (Currently Amended) The method for Claim 1 further comprising the computer-implemented step of:  
storing within a database, objects that define said data item and said category object.
7. (Original) The method for Claim 1 further comprising the computer-implemented step of:  
maintaining an object relational mapping system that indicates a correlation between said data item and data stored in a relational database.
8. (Original) The method for Claim 1 wherein said category class is a user defined subclass of a parent category class.
9. (Previously Presented) The method for Claim 1 wherein the step of associating said data item with said category object further includes the computer-implemented step of:  
establishing a pointer from said category object to said data item.
10. (Previously Presented) The method for Claim 1 wherein the step of associating said data item with said category object further includes the computer-implemented step of:

maintaining a table that includes an entry that indicates that said data item is associated with said category.

11. (Previously Presented) The method for Claim 10 wherein the step of maintaining a table further includes the computer-implemented step of:  
maintaining said entry to include a key that identifies said category object and a pointer to said category object.
12. (Currently Amended) The method of Claim 10 ~~for~~ wherein the step of maintaining a table further includes the computer-implemented step of:  
maintaining said table externally to said data item.
13. (Previously Presented) The method of Claim 10 wherein the step of maintaining a table further includes the computer-implemented step of:  
maintaining said table internally to said data item.
14. (Previously Presented) The method for Claim 1 wherein the step of associating said data item with said category object further includes the computer-implemented step of:  
storing into said data item a hash table;  
locating an entry in said hash table for said category object based on data associated with said category object;  
locating a pointer to said category object in said entry; and  
following said pointer to locate said category object.

15. (Original) The method for Claim 14 further comprising the computer-implemented steps of:
- receiving data that is designated as a key for locating said entry in said hash table;
- determining whether said data conforms to rules associated with said key; and
- if said data conforms to said rules
- using said data as said key to locate said entry.
16. (Previously Presented) The method for Claim 1 wherein the step of creating a category object further includes the computer-implemented step of:
- maintaining a table that includes an entry that contains a particular attribute of said one or more attributes.
17. (Previously Presented) The method for Claim 16 wherein the step of maintaining a table further includes the computer-implemented step of:
- maintaining said entry to include a key that identifies said particular attribute.
18. (Previously Presented) The method of Claim 16 wherein the step of maintaining a table further includes the computer-implemented step of:
- maintaining said table externally to said category object.
19. (Previously Presented) The method of Claim 16 wherein the step of maintaining a table further includes the computer-implemented step of:
- maintaining said table internally to said category object.

20. (Previously Presented) The method for Claim 1 wherein the step of creating a category object further includes the computer-implemented steps of:  
storing into said category object a hash table; and  
locating an entry in said hash table for a particular attribute of said one or more attributes.
21. (Original) The method for Claim 20 further comprising the computer-implemented steps of:  
receiving data that is designated as a key for locating said entry in said hash table;  
determining whether said data conforms to rules associated with said key; and  
if said data conforms to said rules  
using said data as said key to locate said entry.
22. (Original) The method for Claim 1 further comprising the computer-implemented step of:  
associating said category object with a second data item that is an instance of a second class, without associating said category object with all other instances of said second class wherein said first class is a different class from said second class.
23. (Previously Presented) The method for Claim 1 wherein said category class is a first file type and said category object is a first file of said first file type in a file system; wherein said first class is a second file type and said data item is a second file of said second file type in a file system; and  
wherein the step of associating includes associating said second file with said first file without associating said first file with all other instances of said second file type

thereby causing said second file to be associated with said structure in said file system.

24. (Previously Presented) A computer-implemented method for establishing a structure of a data item within a computer system, where the data item is an instance of a class and inherits attributes and methods from said class, the method comprising the steps of:
- creating a first category object that is an instance of a first category class, wherein said first category class has one or more attributes;
- creating a second category object that is an instance of a second category class, wherein said second category class has one or more attributes and is a different class than the first category class;
- wherein the first category class and the second category class are external to the class lineage of the class of which the data item is an instance; and
- associating said data item with said first category object and with said second category object thereby causing said data item to be associated with a structure that includes storage for values for said one or more attributes of said first category class and for said one or more attributes of said second category class.
25. (Original) The method for Claim 24 further comprising the computer-implemented steps of:
- receiving data that is designated for a particular attribute of said one or more attributes of said first category class;

determining whether said data conforms to rules associated with said particular attribute;

and

if said data conforms to said rules

storing said data as a value into said particular attribute.

26. (Previously Presented) The method for Claim 25 wherein the steps of receiving, determining, and storing are performed by a method in said first category class.
27. (Original) The method for Claim 25 wherein said rules are data type rules associated with a data type of said particular attribute.
28. (Original) The method for Claim 25 wherein said rules are software rules.
29. (Currently Amended) The method for Claim 24 further comprising the computer-implemented step of:  
storing within a database, objects that define said data item and said first category object.
30. (Original) The method for Claim 24 further comprising the computer-implemented step of:  
maintaining an object relational mapping system that indicates a correlation between said data item and data stored in a relational database.
31. (Original) The method for Claim 24 wherein said first category class is a user defined subclass of a parent category class.

32. (Previously Presented) The method for Claim 24 wherein the step of associating said data item with said first category object further includes the computer-implemented step of:  
  
establishing a pointer from said first category object to said data item.
33. (Previously Presented) The method for Claim 24 wherein the step of associating said data item with said first category object further includes the computer-implemented step of:  
  
maintaining a table that includes an entry that indicates that said data item is associated with said first category.
34. (Previously Presented) The method for Claim 33 wherein the step of maintaining a table further includes the computer-implemented step of:  
  
maintaining said entry to include a key that identifies said first category object and a pointer to said first category object.
35. (Previously Presented) The method of Claim 33 wherein the step of maintaining a table further includes the computer-implemented step of:  
  
maintaining said table externally to said data item.
36. (Previously Presented) The method of Claim 33 wherein the step of maintaining a table further includes the computer-implemented step of:  
  
maintaining said table internally to said data item.



37. (Previously Presented) The method for Claim 24 wherein the step of associating said data item with said first category object further includes the computer-implemented step of:
- storing into said data item a hash table;
- locating an entry in said hash table for said first category object based on data associated with said first category object;
- locating a pointer to said first category object in said entry; and
- following said pointer to locate said first category object.
38. (Original) The method for Claim 37 further comprising the computer-implemented steps of:
- receiving data that is designated as a key for locating said entry in said hash table;
- determining whether said data conforms to rules associated with said key; and
- if said data conforms to said rules
- using said data as said key to locate said entry.
39. (Previously Presented) The method for Claim 24 wherein the step of creating a first category object further includes the computer-implemented step of:
- maintaining a table that includes an entry that contains a particular attribute of said one or more attributes of said first category class.
40. (Previously Presented) The method for Claim 39 wherein the step of maintaining a table further includes the computer-implemented step of:
- maintaining said entry to include a key that identifies said particular attribute.

41. (Previously Presented) The method of Claim 39 wherein the step of maintaining a table further includes the computer-implemented step of:  
maintaining said table externally to said category object.
42. (Previously Presented) The method of Claim 39 wherein the step of maintaining a table further includes the computer-implemented step of:  
maintaining said table internally to said category object.
43. (Previously Presented) The method for Claim 24 wherein the step of creating a first category object further includes the computer-implemented steps of:  
storing into said first category object a hash table; and  
locating an entry in said hash table for a particular attribute of said one or more attributes of said first category class.
44. (Original) The method for Claim 43 further comprising the computer-implemented steps of:  
receiving data that is designated as a key for locating said entry in said hash table;  
determining whether said data conforms to rules associated with said key; and  
if said data conforms to said rules  
using said data as said key to locate said entry.
45. (Original) The method for Claim 24 wherein said first category class is a first file type and said first category object is a first file of said first file type in a file system;

wherein said second category class is a second file type and said second category object is a second file of said second file type in said file system;

wherein said class is a third file type and said data item is a third file of said third file type in said file system; and

wherein the step of associating includes associating said third file with said first file and said second file thereby causing said third file to be associated with said structure in said file system that includes storage for values for said one or more attributes of said first file type and for said one or more attributes of said second file type.

46-47. (Not Entered)

48. (New) A computer-readable storage medium storing one or more sequences of instructions for establishing a structure of a data item within a computer system, wherein said data item is an instance of a first class and inherits attributes and methods from said first class, wherein the one or more sequences of instructions when executed by one or more processors cause performance of the steps of:
- creating a category object that is an instance of a category class, wherein said category class has one or more attributes; and
- associating said data item with said category object without associating said category object with all other instances of said first class thereby causing said data item to be associated with a structure that includes storage for values for said one or more attributes of said category class.

49. (New) The computer-readable storage medium of Claim 48, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the steps of:
- receiving data that is designated for a particular attribute of said one or more attributes;
- determining whether said data conforms to rules associated with said particular attribute;
- and
- if said data conforms to said rules
- storing said data as a value into said particular attribute.
50. (New) The computer-readable storage medium of Claim 49, wherein the instructions that cause the performance of the steps of receiving, determining, and storing are included in instructions for performing a method in said category class.
51. (New) The computer-readable storage medium of Claim 48, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:
- storing within a database, objects that define said data item and said category object.
52. (New) The computer-readable storage medium of Claim 48, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:
- maintaining an object relational mapping system that indicates a correlation between said data item and data stored in a relational database.

53. (New) The computer-readable storage medium of Claim 48, wherein said category class is a user defined subclass of a parent category class.
54. (New) The computer-readable storage medium of Claim 48, wherein the instructions that cause the performance of the step of associating said data item with said category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
establishing a pointer from said category object to said data item.
55. (New) The computer-readable storage medium of Claim 48, wherein the instructions that cause the performance of the step of associating said data item with said category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
maintaining a table that includes an entry that indicates that said data item is associated with said category.
56. (New) The computer-readable storage medium of Claim 48, wherein the instructions that cause the performance of the step of associating said data item with said category object further comprise instructions which, when executed by the one or more processors, cause the performance of the steps of:  
storing into said data item a hash table;  
locating an entry in said hash table for said category object based on data associated with said category object;  
locating a pointer to said category object in said entry; and

following said pointer to locate said category object.

57. (New) The computer-readable storage medium of Claim 48, wherein the instructions that cause the performance of the step of creating the category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:
- maintaining a table that includes an entry that contains a particular attribute of said one or more attributes.
58. (New) The computer-readable storage medium of Claim 48, wherein the instructions that cause the performance of the step of creating the category object further comprise instructions which, when executed by the one or more processors, cause the performance of the steps of:
- storing into said category object a hash table; and
- locating an entry in said hash table for a particular attribute of said one or more attributes.
59. (New) The computer-readable storage medium of Claim 48, wherein:
- said category class is a first file type and said category object is a first file of said first file type in a file system;
- wherein said first class is a second file type and said data item is a second file of said second file type in a file system; and
- wherein the instructions that cause the performance of the step of associating further comprise instructions which, when executed by the one or more processors, cause the performance of the step of associating said second file with said first file

without associating said first file with all other instances of said second file type  
thereby causing said second file to be associated with said structure in said file  
system.

60. (New) A computer-readable storage medium storing one or more sequences of instructions for establishing a structure of a data item within a computer system, wherein the data item is an instance of a class and inherits attributes and methods from said class, wherein the one or more sequences of instructions when executed by one or more processors cause performance of the steps of:
- creating a first category object that is an instance of a first category class, wherein said first category class has one or more attributes;
- creating a second category object that is an instance of a second category class, wherein said second category class has one or more attributes and is a different class than the first category class;
- wherein the first category class and the second category class are external to the class lineage of the class of which the data item is an instance; and
- associating said data item with said first category object and with said second category object thereby causing said data item to be associated with a structure that includes storage for values for said one or more attributes of said first category class and for said one or more attributes of said second category class.
61. (New) The computer-readable storage medium of Claim 60, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the steps of:

receiving data that is designated for a particular attribute of said one or more attributes of  
said first category class;  
determining whether said data conforms to rules associated with said particular attribute;  
and  
if said data conforms to said rules  
storing said data as a value into said particular attribute.

62. (New) The computer-readable storage medium of Claim 61, wherein the instructions that cause the performance of the steps of receiving, determining, and storing are included in instructions for performing a method in said first category class.
63. (New) The computer-readable storage medium of Claim 60, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
storing within a database, objects that define said data item and said first category object.
64. (New) The computer-readable storage medium of Claim 60, wherein the one or more sequences of instructions further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
maintaining an object relational mapping system that indicates a correlation between said data item and data stored in a relational database.
65. (New) The computer-readable storage medium of Claim 60, wherein said first category class is a user defined subclass of a parent category class.



66. (New) The computer-readable storage medium of Claim 60, wherein the instructions that cause the performance of the step of associating said data item with said first category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
establishing a pointer from said first category object to said data item.
67. (New) The computer-readable storage medium of Claim 60, wherein the instructions that cause the performance of the step of associating said data item with said first category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
maintaining a table that includes an entry that indicates that said data item is associated with said first category.
68. (New) The computer-readable storage medium of Claim 60, wherein the instructions that cause the performance of the step of associating said data item with said first category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:  
storing into said data item a hash table;  
locating an entry in said hash table for said first category object based on data associated with said first category object;  
locating a pointer to said first category object in said entry; and  
following said pointer to locate said first category object.

69. (New) The computer-readable storage medium of Claim 60, wherein the instructions that cause the performance of the step of creating the first category object further comprise instructions which, when executed by the one or more processors, cause the performance of the step of:
- maintaining a table that includes an entry that contains a particular attribute of said one or more attributes of said first category class.
70. (New) The computer-readable storage medium of Claim 60, wherein the instructions that cause the performance of the step of creating the first category object further comprise instructions which, when executed by the one or more processors, cause the performance of the steps of:
- storing into said first category object a hash table; and
- locating an entry in said hash table for a particular attribute of said one or more attributes of said first category class.
71. (New) The computer-readable storage medium of Claim 60, wherein:
- said first category class is a first file type and said first category object is a first file of said first file type in a file system;
- wherein said second category class is a second file type and said second category object is a second file of said second file type in said file system;
- wherein said class is a third file type and said data item is a third file of said third file type in said file system; and
- wherein the instructions that cause the performance of the step of associating further comprise instructions which, when executed by the one or more processors, cause

the performance of the step of associating said third file with said first file and said second file thereby causing said third file to be associated with said structure in said file system that includes storage for values for said one or more attributes of said first file type and for said one or more attributes of said second file type.